

Fast Temperature Sensor for use in Atmospheric Sciences, Phase I

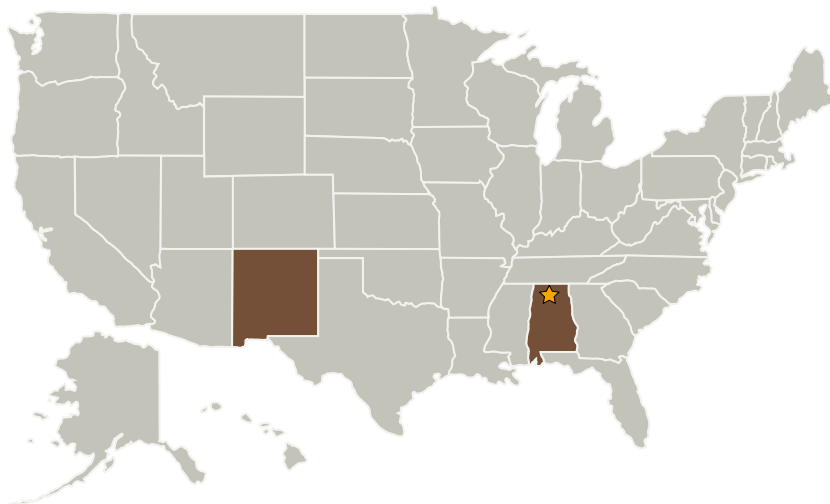
Completed Technology Project (2008 - 2008)



Project Introduction

Southwest Sciences proposes a novel sensor to measure atmospheric temperature at high frequency (10 Hz) and with high precision and accuracy (0.1 degrees C). Existing temperature sensors are negatively impacted by high airflows on platforms such as aircraft or by the presence of cloud particles. Such inaccuracies prevent detailed understanding of cloud microphysics and energy fluxes that are critical for understanding global climate change. The proposed sensor uses a low power vertical cavity surface emitting laser with a novel optical cell to measure temperature in a minimally intrusive method that is unaffected by cloud particles or aircraft speed. The sensor will be sufficiently lightweight and compact for use on balloons, kites, and UAVs as well as more conventional research aircraft.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Marshall Space Flight Center (MSFC)	Lead Organization	NASA Center	Huntsville, Alabama
Southwest Sciences, Inc.	Supporting Organization	Industry	Santa Fe, New Mexico



Fast Temperature Sensor for use in Atmospheric Sciences, Phase I

Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	1
Project Management	2
Technology Areas	2

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Marshall Space Flight Center (MSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Fast Temperature Sensor for use in Atmospheric Sciences, Phase I

Completed Technology Project (2008 - 2008)



Primary U.S. Work Locations

Alabama

New Mexico

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Mark Zondlo

Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.3 In-Situ Instruments and Sensors
 - └ TX08.3.4 Environment Sensors